

Listing of Claims:

- Claim 1. (currently amended) ~~A Polyurethane-~~ thermoplastic polyurethane or polyurethane-urea ~~comprised of~~ comprising poly(trimethylene-ethylene ether) glycol as a soft segment.
- Claim 2. (original) The polyurethane or polyurethane-urea of claim 1, wherein the poly(trimethylene-ethylene ether) glycol has a number average molecular weight (Mn) of 250 to about 10,000.
- Claim 3. (currently amended) The polyurethane or polyurethane-urea of claim 1, comprising about 10 to about 90 weight % soft segment.
- Claim 4. (currently amended) The polyurethane or polyurethane-urea of claim 1, wherein the dihydroxy functionality of poly(trimethylene-ethylene ether) glycol is about 1.6 to about 2.0.
- Claim 5. (currently amended) A thermoplastic polyurethane or polyurethane-urea prepared from a reaction mixture consisting essentially of:
- (a) poly(trimethylene-ethylene ether) glycol
 - (b) diisocyanate; and
 - (c) diol or diamine chain extender.
- Claim 6. (original) A polyurethane as claimed in claim 5 wherein the diol chain extender is selected from the group consisting of ethylene glycol, 1,2-propylene glycol, 1,3-propanediol, 1,4-butanediol, 1,6-hexanediol, diethylene glycol, 2-methyl-1,3-propanediol, 3-methyl-1,5-pentanediol, 2,2-dimethyl-1,3-propanediol, 2,2,4-trimethyl-1,5-pentanediol, 2-methyl-2-ethyl-1,3-propanediol, 1,4-bis(hydroxyethoxy)benzene, bis(hydroxyethylene)terephthalate, hydroquinone bis(2-hydroxyethyl) ether, and combinations thereof.

- Claim 7. (original) A polyurethane-urea as claimed in claim 5 wherein the diamine chain extender is selected from the group consisting of 1,2-ethylenediamine, 1,6-hexanediamine, 1,2-propanediamine, 4,4'-methylene-bis(3-chloroaniline), dimethylthiotoluenediamine, 4,4'-diaminodiphenylmethane, 1,3-diaminobenzene, 1,4-diaminobenzene, 3,3'-dimethoxy-4,4'-diamino biphenyl, 3,3'-dimethyl-4,4'-diamino biphenyl, 4,4'-diamino biphenyl, 3,3'-dichloro-4,4'-diamino biphenyl, and combinations thereof.
- Claim 8. (currently amended) The polyurethane or polyurethane-urea of claim 5 wherein the diisocyanate is selected from the group 2,4-toluene diisocyanate, 2,6-toluene diisocyanate, 4,4'-diphenylmethane diisocyanate, 4,4'-dicyclohexylmethane diisocyanate, 3,3'-dimethyl-4,4'-biphenyl diisocyanate, 1,4-benzene diisocyanate, trans-cyclohexane-1,4-diisocyanate, 1,5-naphthalene diisocyanate, 1,6-hexamethylene diisocyanate, 4,6-xylene diisocyanate, isophorone diisocyanate, and combinations thereof.
- Claim 9. (currently amended) The polyurethane or polyurethane-urea of claim 5 wherein the poly(trimethylene-ethylene ether) glycol has a number average molecular weight ranging from 250 to about 10,000.
- Claim 10. (currently amended) The polyurethane or polyurethane-urea of claim 9 wherein the poly(trimethylene-ethylene ether) glycol has a number average molecular weight ranging from about 1,000 to about 5,000.
- Claim 11. (currently amended) The polyurethane or polyurethane-urea of claim 5, ~~comprised of~~ comprising up to about 85 wt % poly(trimethylene-ethylene ether) glycol of the total weight.

- Claim 12. (original) The polyurethane or polyurethane-urea of claim 5 in which the ratio of total reactive groups contained in the poly(trimethylene-ethylene ether) glycol and chain extender components to the isocyanate groups is greater than 1.
- Claim 13. (canceled)
- Claim 14. (currently amended) The polyurethane or polyurethane-urea of claim 1, wherein the poly(trimethylene-ethylene ether) glycol is blended with one or more other polyether glycol(s) glycols.
- Claim 15. (currently amended) The polyurethane or polyurethane-urea of claim 14, wherein the polytrimethylene ether glycol is blended with up to 50 weight % of one or more other polyether glycol(s) glycols.
- Claim 16. (currently amended) The polyurethane or polyurethane-urea of claim 14 ~~claim 8~~, wherein the other polyether glycol is selected from the group consisting of polyethylene glycol, poly(1,2-propylene glycol), polytrimethylene glycol, polytetramethylene glycol and combinations thereof.
- Claim 17. (original) The polyurethane or polyurethane-urea of claim 5, wherein the poly(trimethylene-ethylene ether) glycol comprises water soluble and water insoluble chains.
- Claim 18. (original) The polyurethane or polyurethane-urea of claim 17 wherein the water soluble chains are less than 1 wt % of total polymer.
- Claim 19. (original) The polyurethane or polyurethane-urea of claim 18 wherein the water soluble chains are less than 0.5 wt % of total polymer.
- Claim 20. (original) A diisocyanate-terminated polyether-urethane prepolymer prepared from a reaction mixture consisting essentially of:

- (a) poly(trimethylene-ethylene ether) glycol and
- (b) diisocyanate.

Claim 21. (original) A process of producing diisocyanate-terminated polyether-urethane prepolymer comprising:

- (a) providing (i) diisocyanate and (ii) poly(trimethylene-ethylene ether) glycol having a number average molecular weight in the range of about 1,000 to about 5,000; and
- (b) reacting the diisocyanate and the poly(trimethylene-ethylene ether) glycol while maintaining an NCO:OH equivalent ratio of about 1.1:1 to about 10:1 to form the diisocyanate-terminated polyether-urethane prepolymer.

Claim 22. (currently amended) A process of producing a thermoplastic polyurethane or polyurethane-urea comprising consisting essentially of:

- (a) reacting (i) diisocyanate and (ii) poly(trimethylene-ethylene ether) glycol having a number average molecular weight in the range of about 1,000 to about 5,000 ~~while maintaining an NCO:OH equivalent ratio of about 1.1:1 to about 10:1~~ to form diisocyanate-terminated polyether-urethane prepolymer;
- (b) reacting the diisocyanate-terminated polyether-urethane prepolymer with diol chain extender at an ~~OH:NCO mole ratio of about 0.75:1 to about 1.15:1~~, or with diamine chain extender at ~~NH₂:NCO mole ratio of about 0.85:1 to about 1.10:1~~, to form the polyurethane or the polyurethane-urea wherein said polyurethane or polyurethane-urea is thermoplastic.

Claim 23. (currently amended) The process of claim 22 ~~claim 17~~ further comprising curing the polyurethane or polyurethane-urea.

Claim 24. (currently amended) A process of producing polyurethane or polyurethane-urea comprising:

- (a) providing a reaction mixture consisting essentially of (i) diisocyanate, (ii) poly(trimethylene-ethylene ether) glycol having a number average molecular weight in the range of about 1,000 to about 5,000 and (iii) diol or diamine chain extender; and
- (b) reacting the diisocyanate, the poly(trimethylene-ethylene ether) glycol, and the diol or diamine chain extender to form the polyurethane or the polyurethane-urea.

Claim 25. (currently amended) A process of producing polyurethane or polyurethane-urea ~~comprising~~ consisting essentially of:

- (a) providing (i) diisocyanate and (ii) poly(trimethylene-ethylene ether) glycol having a number average molecular weight in the range of about 1,000 to about 5,000;
- (b) reacting the diisocyanate and the poly(trimethylene-ethylene ether) glycol while maintaining an NCO:OH equivalent ratio of about 1.1:1 to about 10:1 to form a diisocyanate-terminated polyether-urethane prepolymer;
- (a) (c) providing (i) the diisocyanate-terminated polyether-urethane prepolymer and (ii) a diol or diamine chain extender; and
- (b) (d) reacting the diisocyanate-terminated polyether-urethane prepolymer with the diol chain extender at an OH:NCO mole ratio of about 0.75:1 to about 1.15:1, or with diamine chain extender at NH₂:NCO mole ratio of about 0.85:1 to about 1.10:1, ~~more~~ to form the a polyurethane or the a polyurethane-urea.

Claim 26. (original) A shaped article comprising the melt processed polyurethane or polyurethane-urea of claim 5.

Claim 27. (new) A fiber made by melt-spinning the polyurethane or polyurethane-urea of claim 5.